Service Schematics

NOKIA N91

RM-43

Introduction

IMPORTANT:

This document is intended for use by authorized NOKIA service centers only.

"Service Schematics" was created with focus on customer care.
The purpose of this document is to provide further technical repair information for NOKIA mobile phones on Level 3/4 service activities.
It contains additional information such as e.g. "Component finder".
The "Signal overview" page gives a good and fast overview about the most important signals and voltages on board.
Saving process time and improving the repair quality is the aim of this document.
It is to be used additionally to the service manual and other training or service information such as Service Bulletins.

All measurements were made using following equipment:

Nokia repair SW	: Phoenix version 2005.44.4.120
Oscilloscope	: Fluke PM 3380A/B
Spectrum Analyzer	: Advantest R3162 with an analog probe
RF-Generator / GSM Tester	: Rhode & Schwarz CMU 200
Multimeter	: Fluke 73 Series II

While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If the reader finds any errors, NOKIA shall be notified in writing.

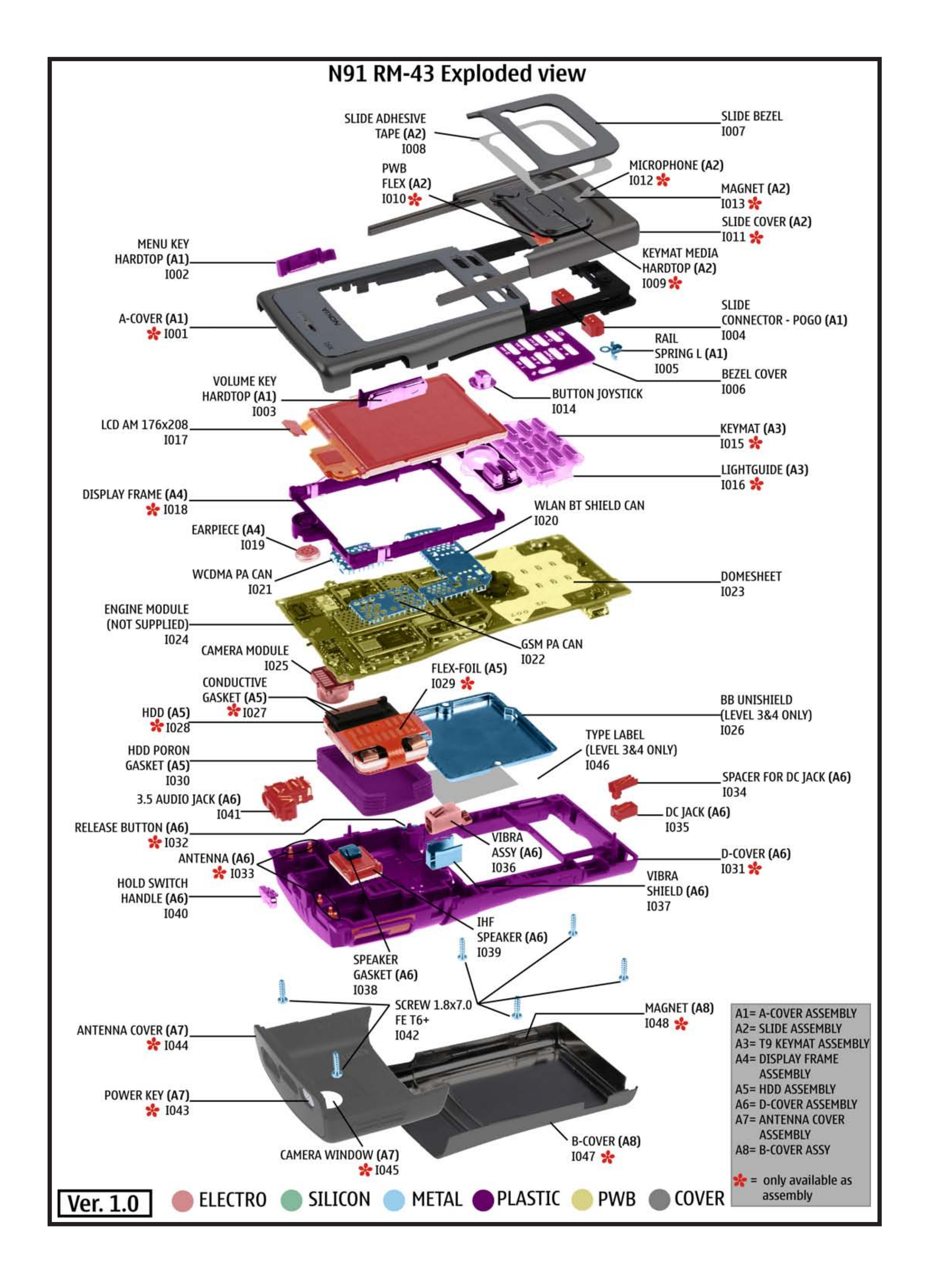
Please send E-Mail to: training.sace@nokia.com

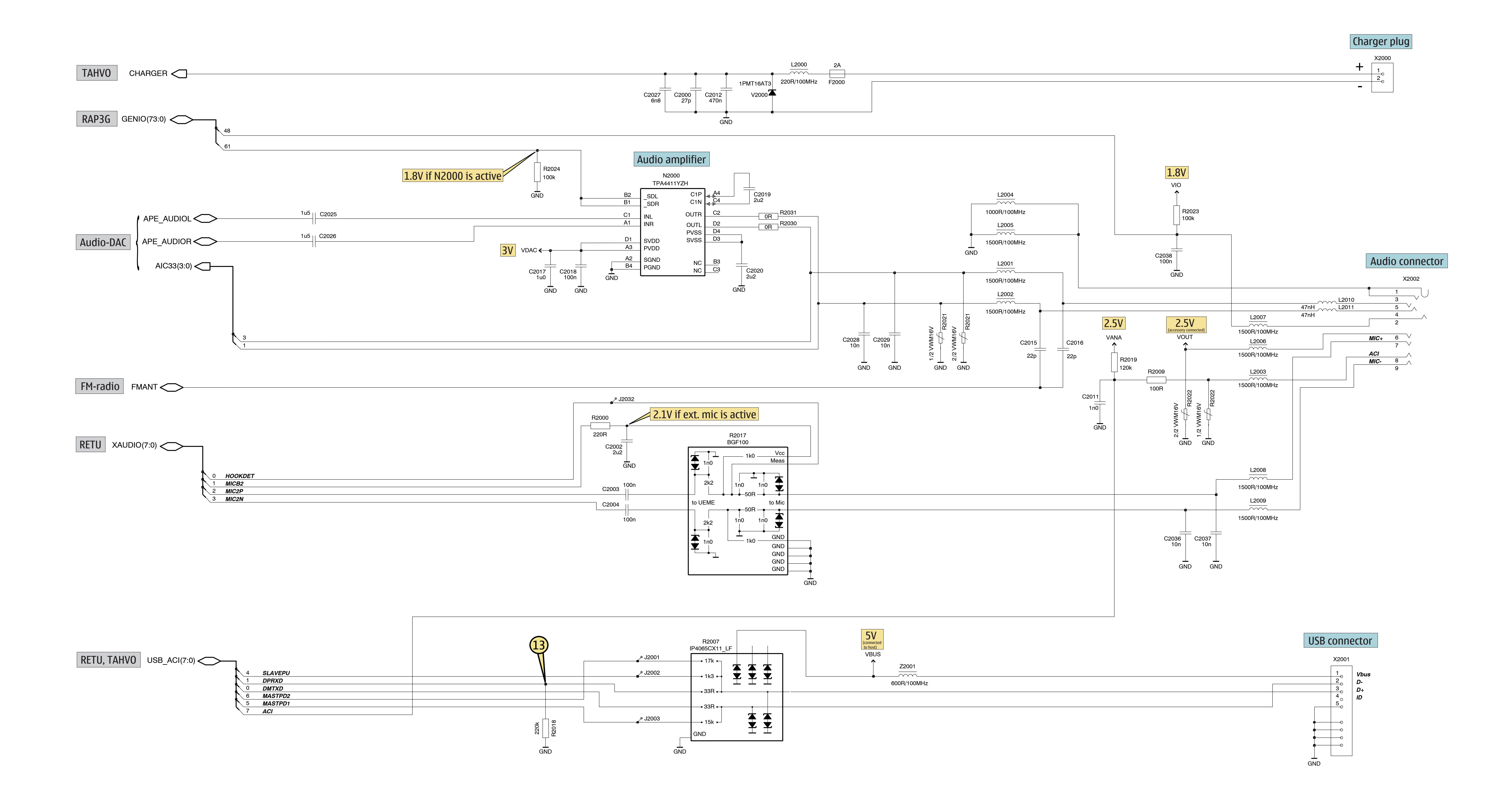


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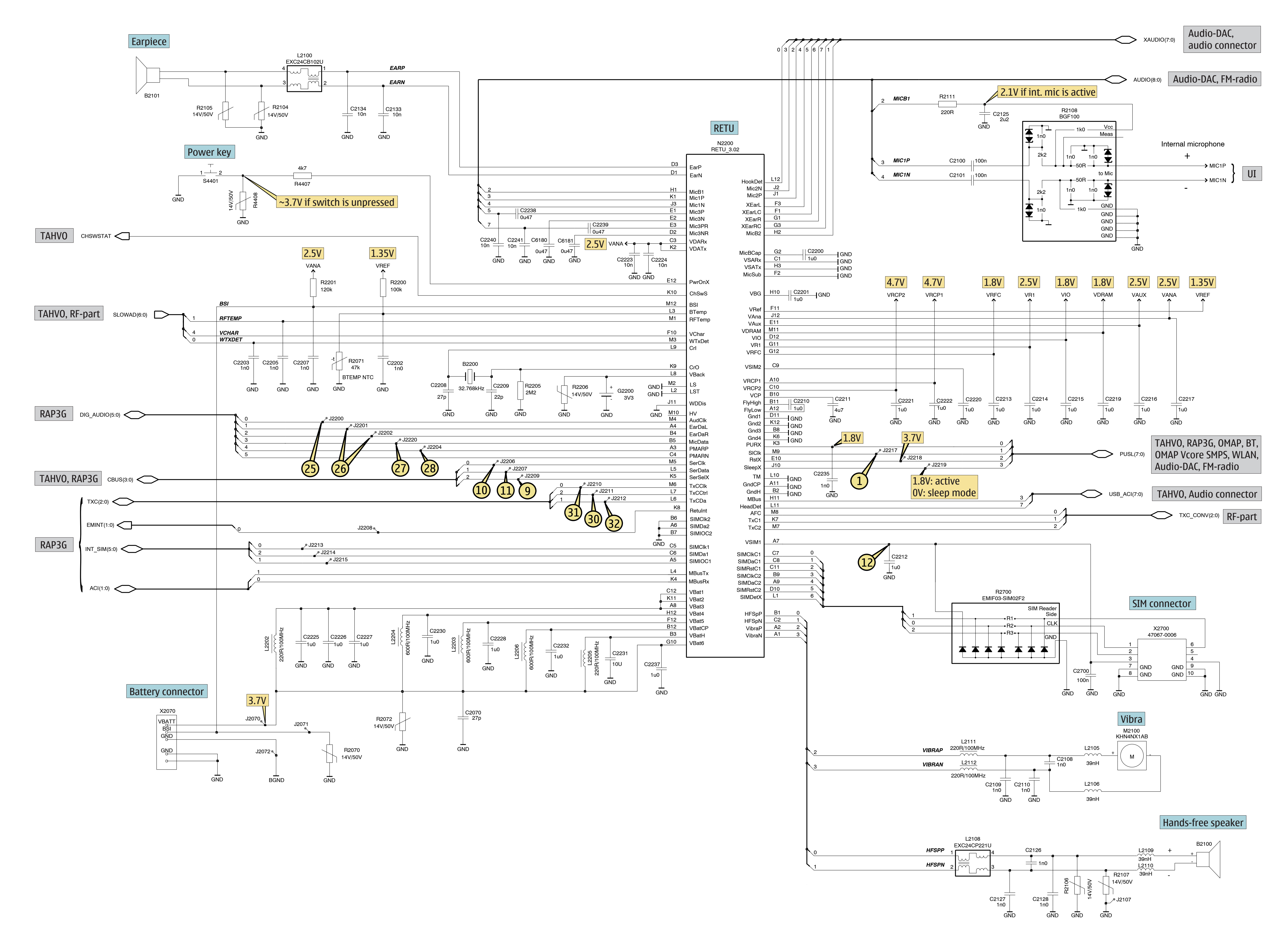
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Exploded view and component disposal

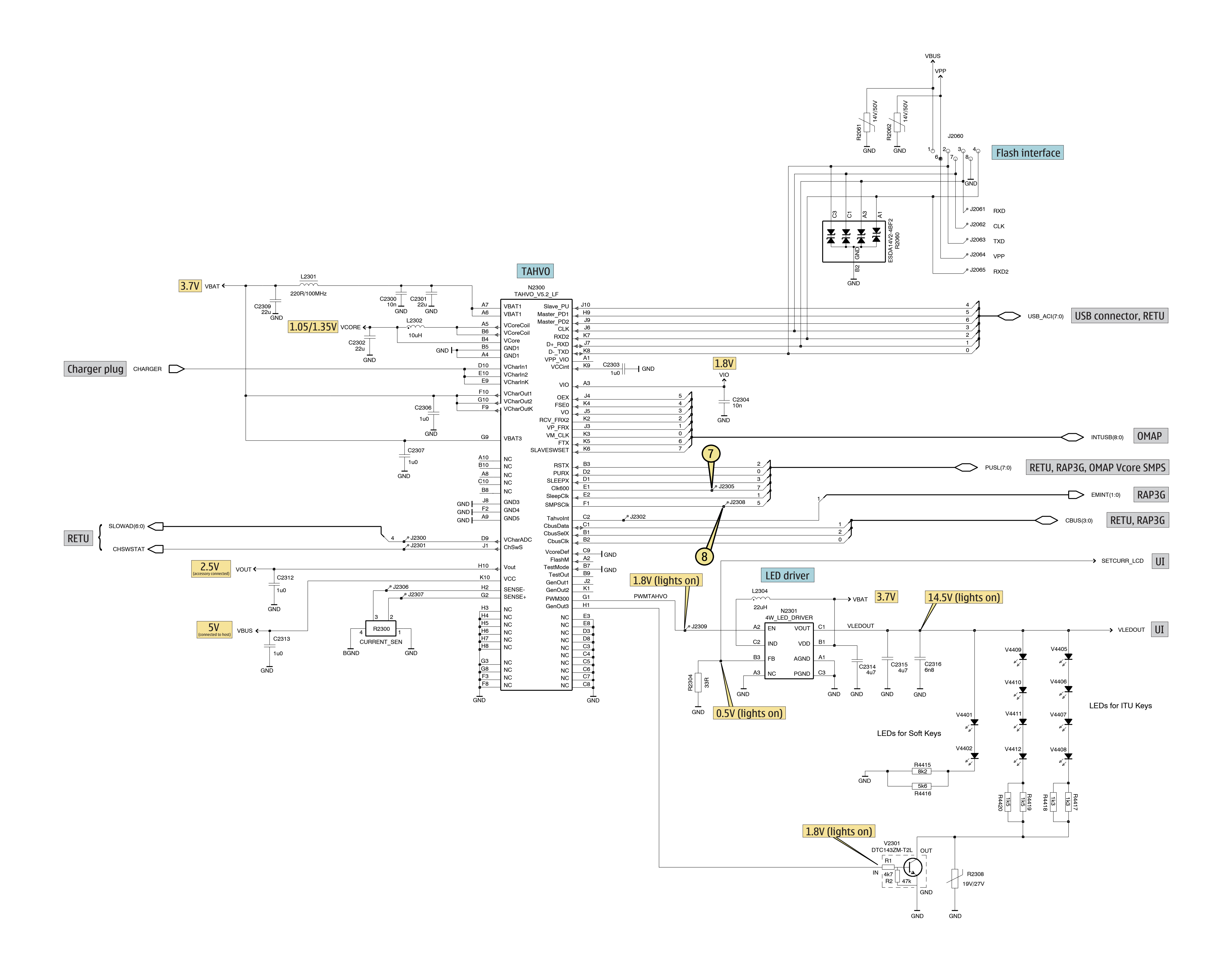




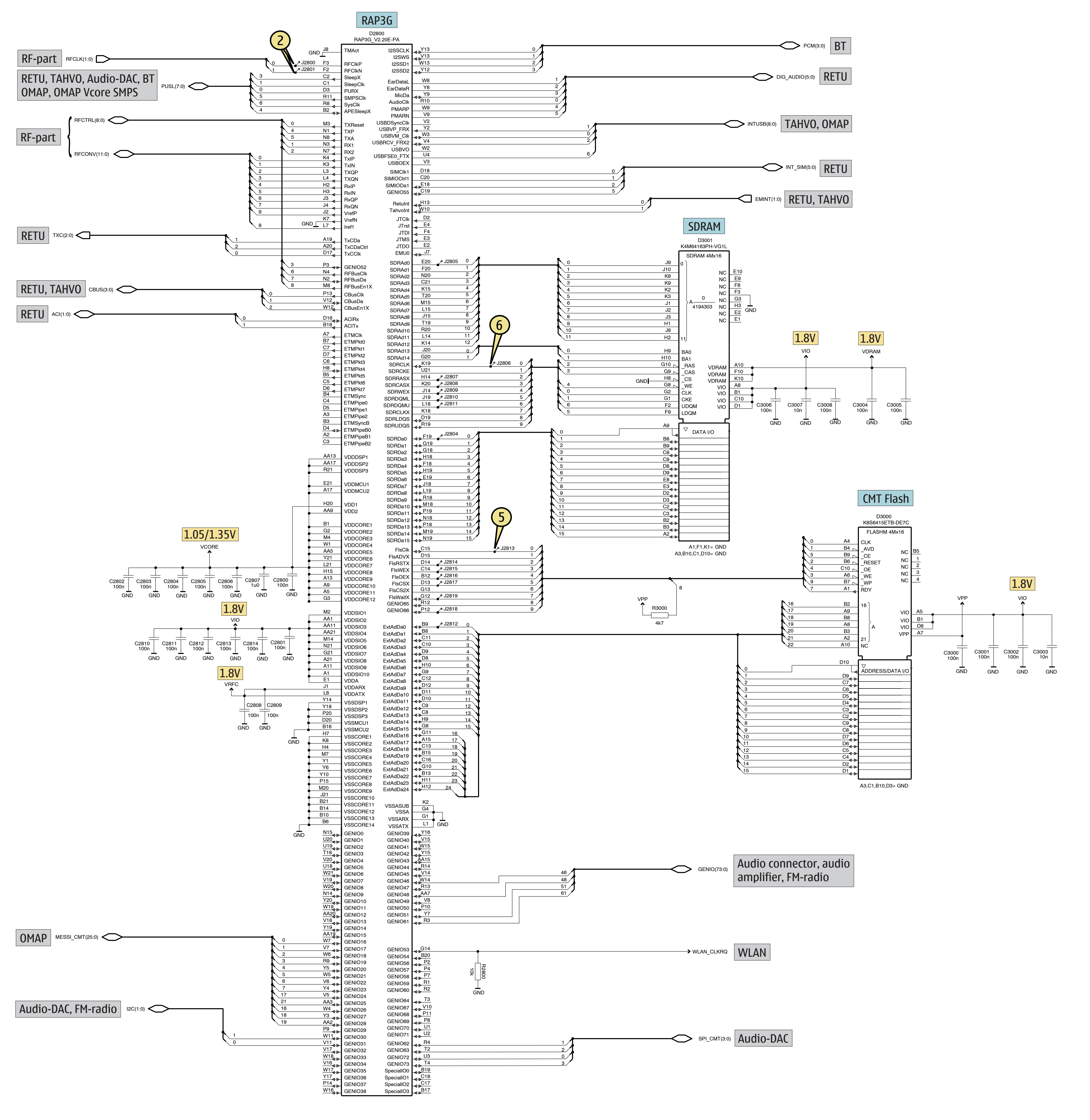
TAHVO
CHARGER
RAP3G
GENIO(73:0)
Charger plug
X2000
Audio amplifier
N2000
TPA4411YZH
1.8V if N2000 is active
Audio-DAC
APE_AUDIOL
APE_AUDIOR
AIC33(3:0)
3V
VDAC
1.8V
VIO
Audio connector
X2002
2.5V
VANA
2.5V
VOUT
FM-radio
FMANT
RETU
XAUDIO(7:0)
HOOKDET
MICB2
MIC2P
MIC2N
2.1V if ext. mic is active
R2017
BGF100
to UEME
to Mic
RETU, TAHVO
USB_ACI(7:0)
SLAVEPU
DPRXD
DMTXD
MASTPD2
MASTPD1
ACI
13
R2007
IP4065CX11_LF
5V
VBUS
USB connector
X2001
Vbus
D-
D+
ID
GND

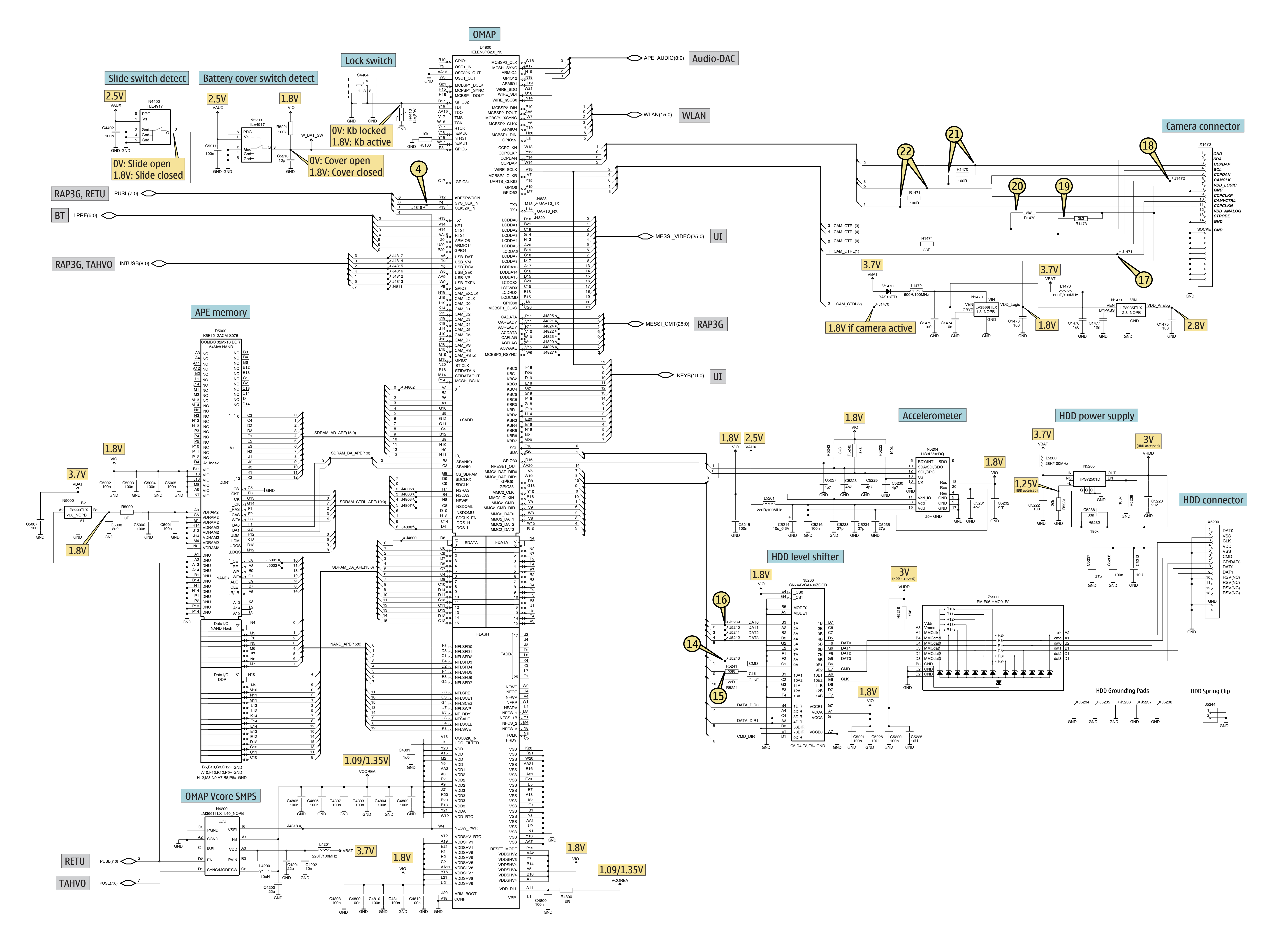


Earpiece
Power key
~3.7V if switch is unpressed
TAHVO
TAHVO, RF-part
RAP3G
TAHVO, RAP3G
RAP3G
Battery connector
RETU
N2200
RETU_3.02
Audio-DAC, audio connector
Audio-DAC, FM-radio
2.1V if int. mic is active
Internal microphone
UI
TAHVO, RAP3G, OMAP, BT, OMAP Vcore SMPS, WLAN, Audio-DAC, FM-radio
1.8V: active
0V: sleep mode
TAHVO, Audio connector
RF-part
SIM connector
Vibra
Hands-free speaker

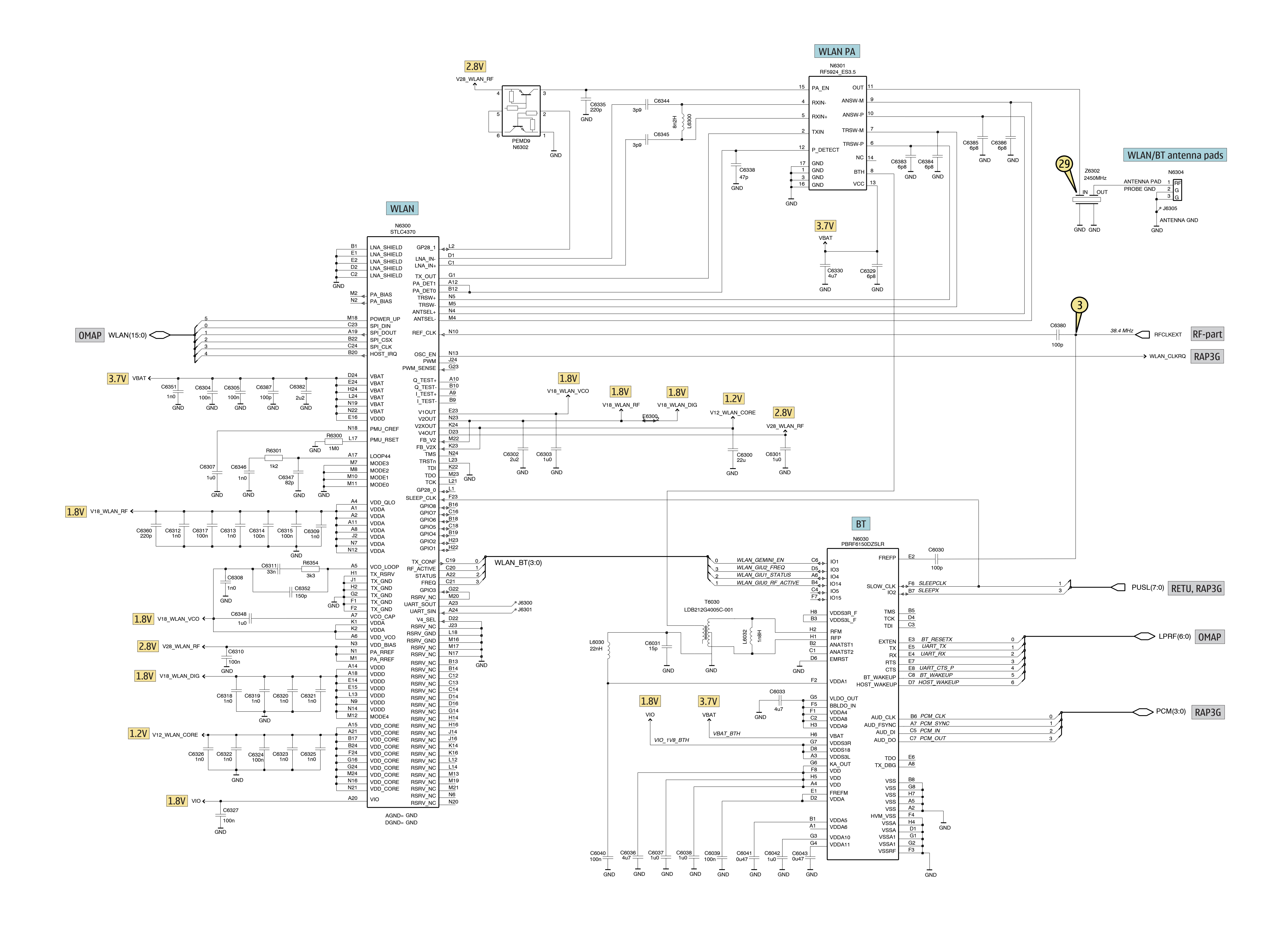


Flash interface
TAHVO
N2300
TAHVO_V5.2_LF
3.7V
1.05/1.35V
Charger plug
1.8V
USB connector, RETU
OMAP
RETU, RAP3G, OMAP Vcore SMPS
RAP3G
RETU, RAP3G
RETU
2.5V
5V
UI
LED driver
1.8V (lights on)
14.5V (lights on)
0.5V (lights on)
LEDs for ITU Keys
LEDs for Soft Keys

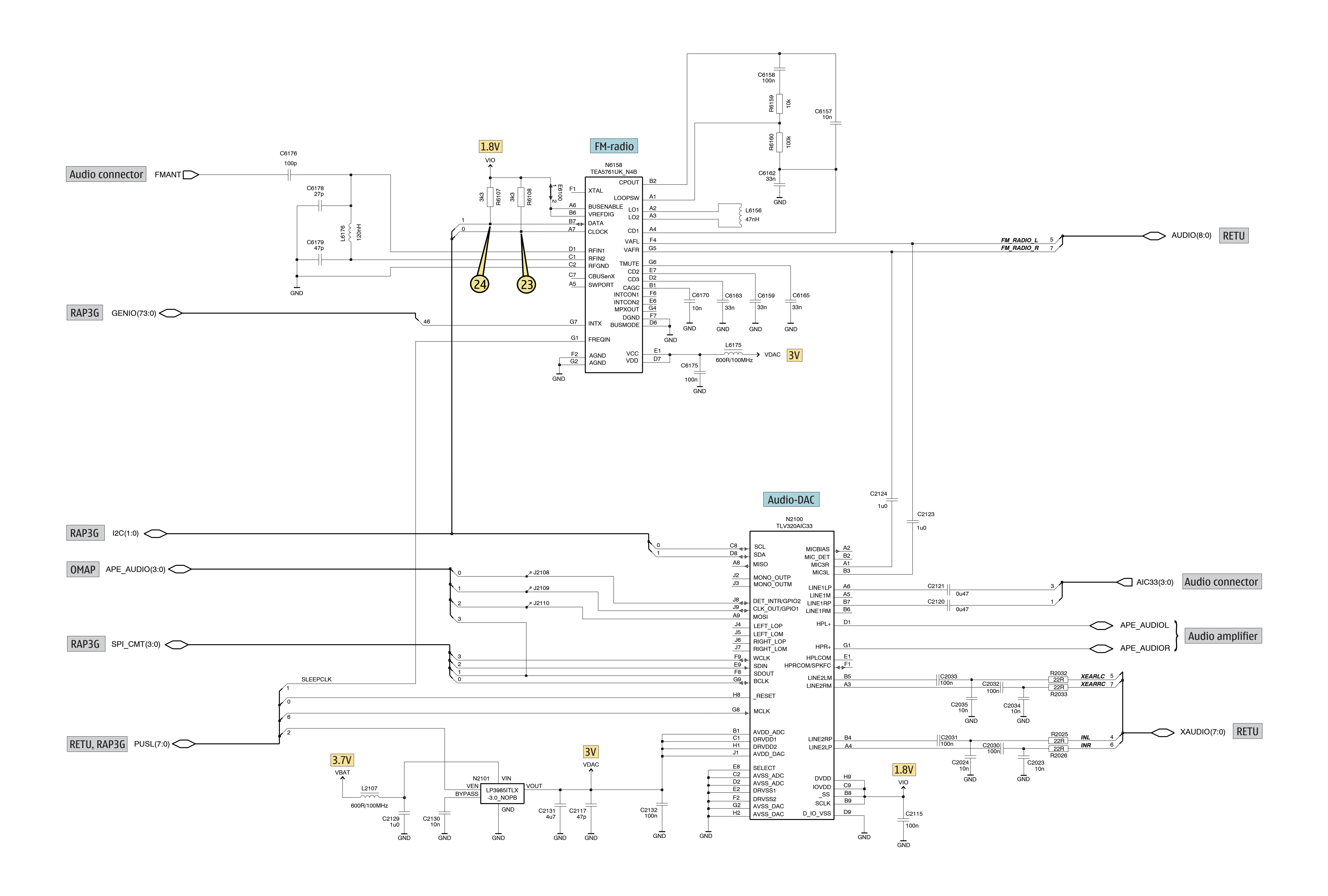

RAP3G
D2800
RAP3G_V2.20E-PA
RF-part
RETU, TAHVO, Audio-DAC, BT
OMAP, OMAP Vcore SMPS
RF-part
RETU
RETU, TAHVO
RETU
BT
RETU
TAHVO, OMAP
RETU
RETU, TAHVO
SDRAM
D3001
K4M64163PH-VG1L
1.8V
1.8V
1.05/1.35V
1.8V
1.8V
CMT Flash
D3000
1.8V
Audio connector, audio
amplifier, FM-radio
OMAP
WLAN
Audio-DAC, FM-radio
Audio-DAC

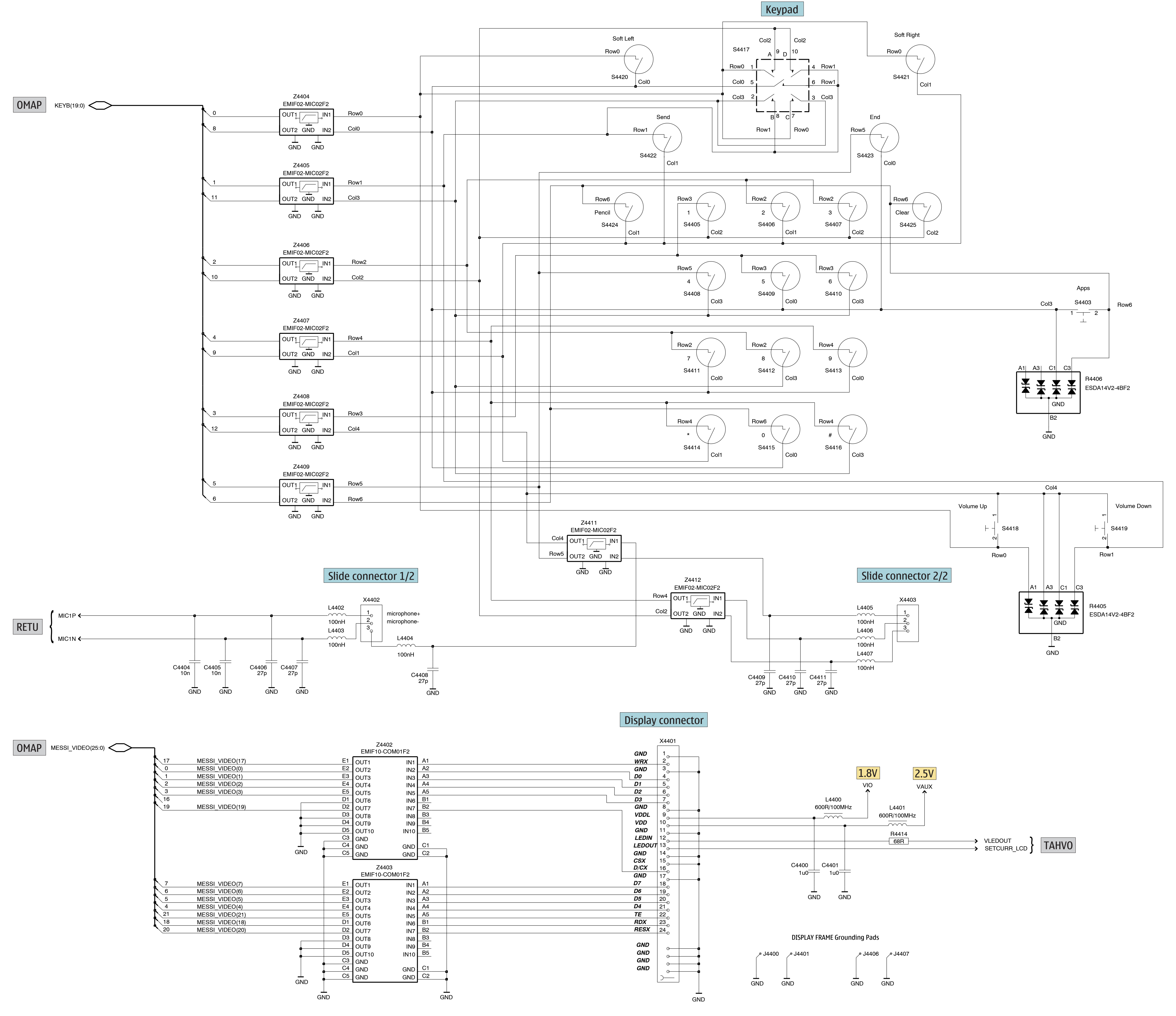


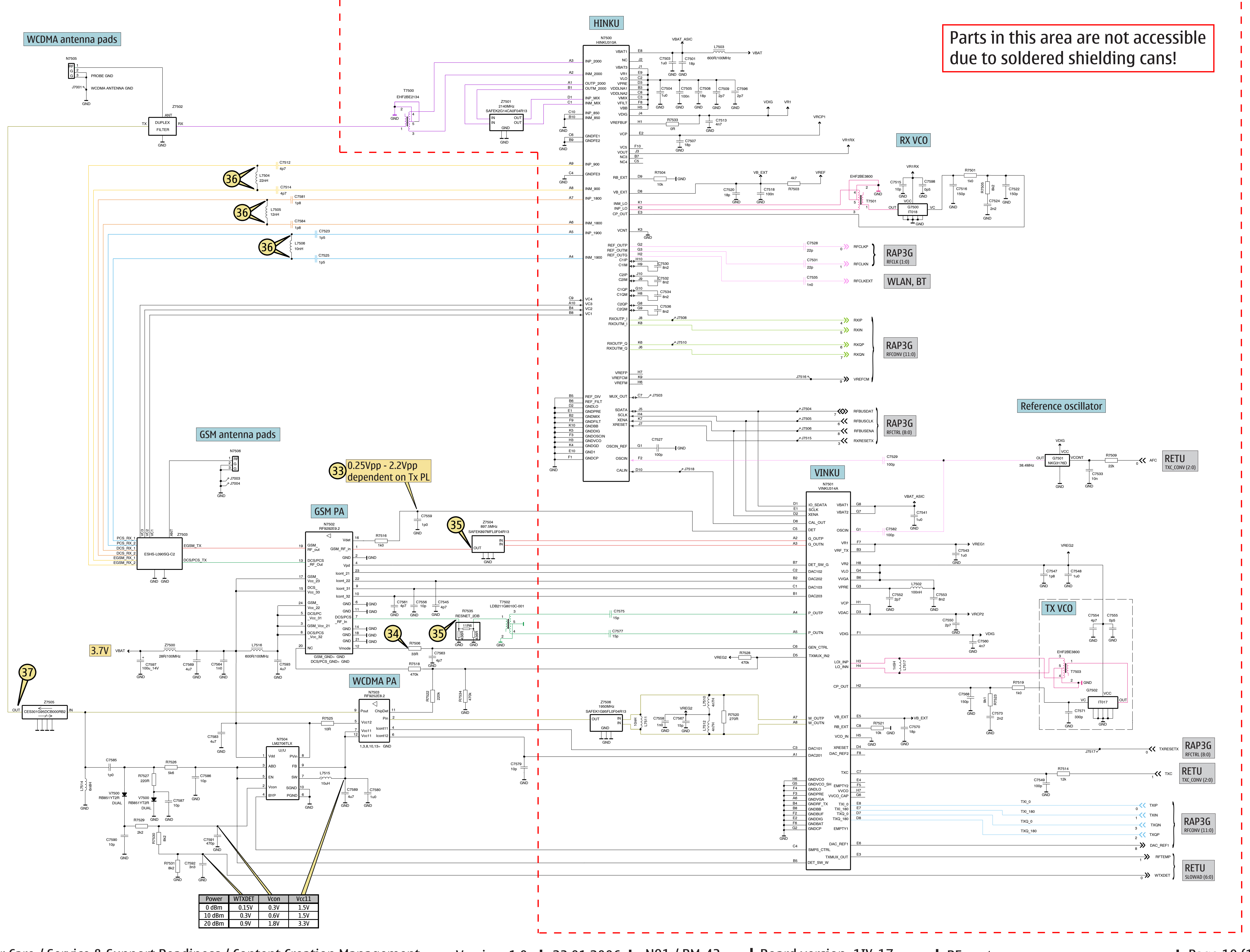
OMAP
Audio-DAC
WLAN
Camera connector
Lock switch
Slide switch detect
Battery cover switch detect
0V: Kb locked
1.8V: Kb active
0V: Slide open
1.8V: Slide closed
0V: Cover open
1.8V: Cover closed
RAP3G, RETU
BT
RAP3G, TAHVO
UI
RAP3G
APE memory
1.8V if camera active
Accelerometer
HDD power supply
HDD connector
HDD level shifter
OMAP Vcore SMPS
RETU
TAHVO
HDD Grounding Pads
HDD Spring Clip



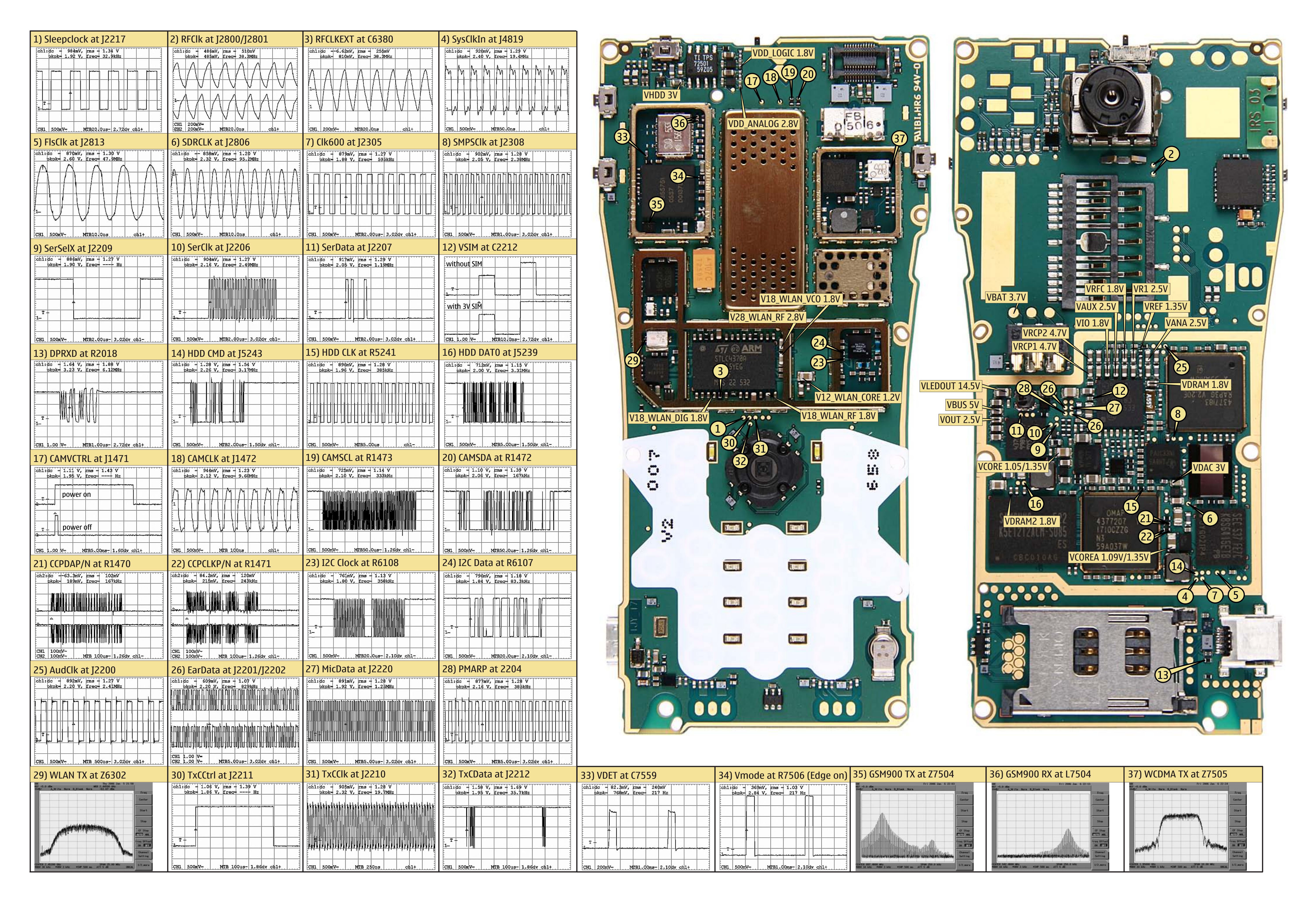
WLAN PA
N6301
RF5924_ES3.5
2.8V
V28_WLAN_RF
PEMD9
N6302
WLAN/BT antenna pads
N6304
Z6302
2450MHz
ANTENNA PAD
PROBE GND
ANTENNA GND
J6305
29
WLAN
N6300
STLC4370
3.7V
VBAT
OMAP
WLAN(15:0)
1.8V
V18_WLAN_VCO
V18_WLAN_RF
V18_WLAN_DIG
1.2V
V12_WLAN_CORE
3
38.4 MHz
RFCLKEXT
RF-part
WLAN_CLKRQ
RAP3G
WLAN_BT(3:0)
BT
N6030
PBRF6150DZSLR
T6030
LDB212G4005C-001
PUSL(7:0)
RETU, RAP3G
LPRF(6:0)
OMAP
PCM(3:0)
RAP3G
VIO
VBAT_BTH
VIO_1V8_BTH
AGND= GND
DGND= GND

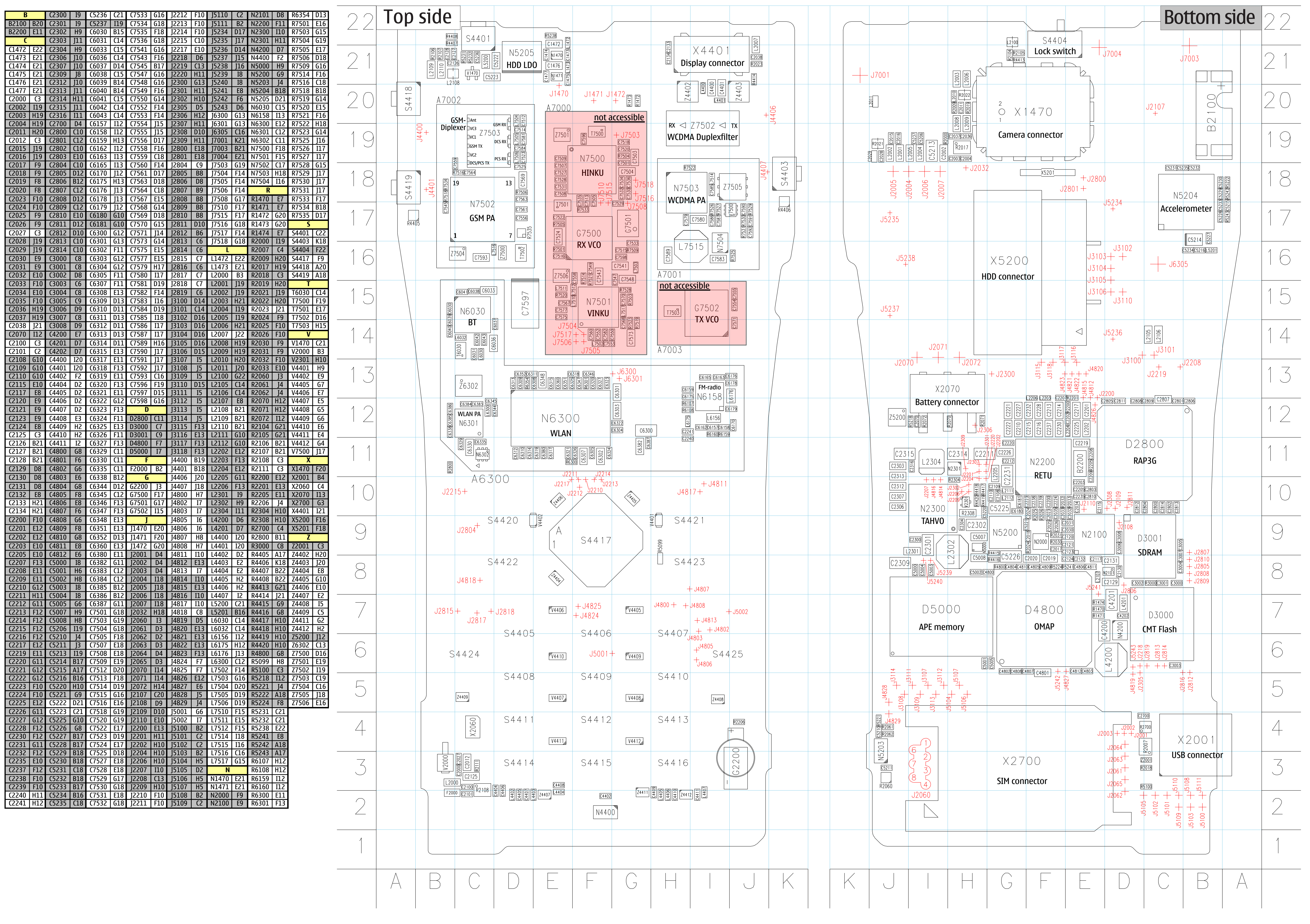

FM-radio
1.8V
3V
3.7V
Audio-DAC
Audio connector
FMANT
RAP3G
GENIO(73:0)
I2C(1:0)
OMAP
APE_AUDIO(3:0)
SPI_CMT(3:0)
RETU, RAP3G
PUSL(7:0)
AUDIO(8:0)
RETU
AIC33(3:0)
APE_AUDIOL
APE_AUDIOR
Audio amplifier
XAUDIO(7:0)
N6158
TEA5761UK_N4B
N2100
TLV320AIC33
N2101
LP3985ITLX
-3.0_NOPB
FM_RADIO_L
FM_RADIO_R
XEARLC
XEARRC
INL
INR
SLEEPCLK
VIO
VDAC
VBAT
24
23


Keypad
OMAP
KEYB(19:0)
Slide connector 1/2
Slide connector 2/2
RETU
MIC1P
MIC1N
Display connector
OMAP
MESSI_VIDEO(25:0)
1.8V
2.5V
VIO
VAUX
VLEDOUT
SETCURR_LCD
TAHVO
DISPLAY FRAME Grounding Pads



Power	WTXDET	Vcon	Vcc11
0 dBm	0.15V	0.3V	1.5V
10 dBm	0.3V	0.6V	1.5V
20 dBm	0.9V	1.8V	3.3V


1) Sleepclock at J2217
2) RFClk at J2800/J2801
3) RFCLKEXT at C6380
4) SysClkIn at J4819
5) FlsClk at J2813
6) SDRCLK at J2806
7) Clk600 at J2305
8) SMPSClk at J2308
9) SerSelX at J2209
10) SerClk at J2206
11) SerData at J2207
12) VSIM at C2212
without SIM
with 3V SIM
13) DPRXD at R2018
14) HDD CMD at J5243
15) HDD CLK at R5241
16) HDD DAT0 at J5239
17) CAMVCTRL at J1471
power on
power off
18) CAMCLK at J1472
19) CAMSCL at R1473
20) CAMSDA at R1472
21) CCPDAP/N at R1470
22) CCPCLKP/N at R1471
23) I2C Clock at R6108
24) I2C Data at R6107
25) AudClk at J2200
26) EarData at J2201/J2202
27) MicData at J2220
28) PMARP at 2204
29) WLAN TX at Z6302
30) TxCCtrl at J2211
31) TxCClk at J2210
32) TxCData at J2212
33) VDET at C7559
34) Vmode at R7506 (Edge on)
35) GSM900 TX at Z7504
36) GSM900 RX at L7504
37) WCDMA TX at Z7505
VDD_LOGIC 1.8V
VHDD 3V
VDD_ANALOG 2.8V
V18_WLAN_VCO 1.8V
V28_WLAN_RF 2.8V
V12_WLAN_CORE 1.2V
V18_WLAN_DIG 1.8V
V18_WLAN_RF 1.8V
VBAT 3.7V
VRFC 1.8V
VR1 2.5V
VAUX 2.5V
VREF 1.35V
VIO 1.8V
VANA 2.5V
VRCP2 4.7V
VRCP1 4.7V
VLEDOUT 14.5V
VBUS 5V
VOUT 2.5V
VDRAM 1.8V
VCORE 1.05/1.35V
VDAC 3V
VDRAM2 1.8V
VCOREA 1.09V/1.35V



B		C2300	I9	C5236	C21	C7533	G16	J2212	F10	J5110	C2	N2101	D8	R6354	D13
B2100	B20	C2301	I9	C5237	I19	C7534	G18	J2213	F10	J5111	B2	N2200	F11	R7501	E16
B2200	E11	C2302	H9	C6030	B15	C7535	F18	J2214	F10	J5234	D17	N2300	I10	R7503	G15
C		C2303	J11	C6031	C14	C7536	G18	J2215	C10	J5235	J17	N2301	H11	R7504	G19
C1472	E22	C2304	H9	C6033	C15	C7541	G16	J2217	E10	J5236	D14	N4200	D7	R7505	E17
C1473	E21	C2306	J10	C6036	C14	C7543	F16	J2218	D6	J5237	J15	N4400	F2	R7506	D18
C1474	E21	C2307	J10	C6037	D14	C7545	B17	J2219	C13	J5238	J16	N5000	H9	R7509	G16
C1475	E21	C2309	J8	C6038	C15	C7547	G16	J2220	H11	J5239	I8	N5200	G9	R7514	F16
C1476	E21	C2312	J10	C6039	B14	C7548	G16	J2300	G13	J5240	I8	N5203	J4	R7516	C18
C1477	E21	C2313	J11	C6040	B14	C7549	F16	J2301	H11	J5241	E8	N5204	B18	R7518	B18
C2000	C3	C2314	H11	C6041	C15	C7550	G14	J2302	H10	J5242	F6	N5205	D21	R7519	G14
C2002	I19	C2315	J11	C6042	C14	C7552	F14	J2305	D5	J5243	D6	N6030	C15	R7520	E15
C2003	H19	C2316	I11	C6043	C14	C7553	F14	J2306	H12	J6300	G13	N6158	I13	R7521	F16
C2004	H19	C2700	D4	C6157	I12	C7554	J15	J2307	H11	J6301	G13	N6300	E12	R7522	H18
C2011	H20	C2800	C10	C6158	I12	C7555	J15	J2308	D10	J6305	C16	N6301	C12	R7523	G14
C2012	C3	C2801	C12	C6159	H13	C7556	D17	J2309	H11	J7001	K21	N6302	C11	R7525	J16
C2015	J19	C2802	C10	C6162	I12	C7558	F16	J2800	E18	J7003	B21	N7500	F18	R7526	I17
C2016	J19	C2803	E10	C6163	I13	C7559	C18	J2801	E18	J7004	E21	N7501	F15	R7527	I17
C2017	F9	C2804	C10	C6165	I13	C7560	F14	J2804	C9	J7503	G19	N7502	C17	R7528	G15
C2018	F9	C2805	D12	C6170	J12	C7561	D17	J2805	B8	J7504	F14	N7503	H18	R7529	J17
C2019	F8	C2806	B12	C6175	H13	C7563	D18	J2806	D8	J7505	F14	N7504	I16	R7530	J17
C2020	F8	C2807	C12	C6176	J13	C7564	C18	J2807	B9	J7506	F14	**R**		R7531	J17
C2023	F10	C2808	D12	C6178	J13	C7567	E15	J2808	B8	J7508	G17	R1470	E7	R7533	F17
C2024	F10	C2809	C12	C6179	J12	C7568	G14	J2809	B8	J7510	F17	R1471	E7	R7534	B18
C2025	F9	C2810	E10	C6180	G10	C7569	D18	J2810	B8	J7515	F17	R1472	G20	R7535	D17
C2026	F9	C2811	D12	C6181	G10	C7570	G15	J2811	D10	J7516	G18	R1473	G20	**S**	
C2027	C3	C2812	D10	C6300	G12	C7571	J14	J2812	B6	J7517	F14	R1474	E7	S4401	C22
C2028	J19	C2813	C10	C6301	G13	C7573	G14	J2813	C6	J7518	G18	R2000	I19	S4403	K18
C2029	J19	C2814	C10	C6302	F11	C7575	E15	J2814	C6	**L**		R2007	C4	S4404	F22
C2030	E9	C3000	C8	C6303	G12	C7577	E15	J2815	C7	L1472	E22	R2009	H20	S4417	F9
C2031	E9	C3001	C8	C6304	G12	C7579	H17	J2816	C6	L1473	E21	R2017	H19	S4418	A20
C2032	E10	C3002	D8	C6305	F11	C7580	I17	J2817	C7	L2000	B3	R2018	C3	S4419	A18
C2033	F10	C3003	C6	C6307	F11	C7581	D19	J2818	C7	L2001	J19	R2019	H20	**T**	
C2034	E10	C3004	C8	C6308	E13	C7582	F14	J2819	C6	L2002	J19	R2021	J19	T6030	C14
C2035	F10	C3005	C9	C6309	D13	C7583	I16	J3100	D14	L2003	H21	R2022	H20	T7500	F19
C2036	H19	C3006	D9	C6310	D11	C7584	D19	J3101	C14	L2004	I19	R2023	J21	T7501	E17
C2037	H19	C3007	C8	C6311	D13	C7585	I18	J3102	D16	L2005	I19	R2024	F9	T7502	D16
C2038	J21	C3008	D9	C6312	D11	C7586	I17	J3103	D16	L2006	H21	R2025	F10	T7503	H15
C2070	I12	C4200	E7	C6313	D13	C7587	I17	J3104	D16	L2007	J22	R2026	F10	**V**	
C2100	C3	C4201	D7	C6314	D11	C7589	H16	J3105	D16	L2008	H19	R2030	F9	V1470	C21
C2101	C2	C4202	D7	C6315	E13	C7590	J17	J3106	D15	L2009	H19	R2031	F9	V2000	B3
C2108	G10	C4400	I20	C6317	E11	C7591	J17	J3107	I5	L2010	H20	R2032	F10	V2301	H10
C2109	G10	C4401	I20	C6318	F13	C7592	J17	J3108	J5	L2011	J20	R2033	E10	V4401	H9
C2110	G10	C4402	F2	C6319	E11	C7593	C16	J3109	I5	L2100	G22	R2060	J3	V4402	E9
C2115	E10	C4404	D2	C6320	F13	C7596	F19	J3110	D15	L2105	C14	R2061	J4	V4405	G7
C2117	E8	C4405	D2	C6321	E11	C7597	D15	J3111	I5	L2106	C14	R2062	J4	V4406	E7
C2120	E9	C4406	D2	C6322	G12	C7598	G16	J3112	I5	L2107	E8	R2070	H12	V4407	E5
C2121	E9	C4407	D2	C6323	F13	**D**		J3113	I5	L2108	B21	R2071	H12	V4408	G5
C2123	E9	C4408	E3	C6324	F11	D2800	C11	J3114	J5	L2109	B21	R2072	I12	V4409	G6
C2124	E8	C4409	H2	C6325	E13	D3000	C7	J3115	F13	L2110	B21	R2104	G21	V4410	E6
C2125	C3	C4410	H2	C6326	F11	D3001	C9	J3116	E13	L2111	G10	R2105	G21	V4411	E4
C2126	B21	C4411	I2	C6327	F13	D4800	F7	J3117	F13	L2112	G10	R2106	B21	V4412	G4
C2127	B21	C4800	G8	C6329	C11	D5000	I7	J3118	F13	L2202	E12	R2107	B21	V7500	J17
C2128	B21	C4801	F6	C6330	C11	**F**		J4400	B19	L2203	F13	R2108	C3	**X**	
C2129	D8	C4802	G6	C6335	C11	F2000	B2	J4401	B18	L2204	E12	R2111	C3	X1470	F20
C2130	D8	C4803	E6	C6338	B12	**G**		J4406	J20	L2205	G11	R2200	E12	X2001	B4
C2131	D8	C4804	G8	C6344	D12	G2200	J3	J4407	J18	L2206	F13	R2201	E13	X2060	C4
C2132	E8	C4805	F8	C6345	C12	G7500	F17	J4800	H7	L2301	I9	R2205	E11	X2070	I13
C2133	H21	C4806	E8	C6346	F13	G7501	G17	J4802	I7	L2302	H9	R2206	J4	X2700	G3
C2134	H21	C4807	F6	C6347	F13	G7502	I15	J4803	I7	L2304	I11	R2304	H10	X4401	I21
C2200	F10	C4808	G6	C6348	E13	**J**		J4805	I6	L4200	D6	R2308	H10	X5200	F16
C2201	E12	C4809	F8	C6351	E13	J1470	E20	J4806	I6	L4201	D7	R2700	C4	X5201	F18
C2202	E12	C4810	G8	C6352	D13	J1471	F20	J4807	H8	L4400	I20	R2800	B11	**Z**	
C2203	E10	C4811	E8	C6360	E13	J1472	G20	J4808	H7	L4401	I20	R3000	C8	Z2001	C3
C2205	E10	C4812	E6	C6380	E11	J2001	D4	J4811	I10	L4402	D2	R4405	A17	Z4402	H20
C2207	F13	C5000	I8	C6382	G11	J2002	D4	J4812	E13	L4403	E2	R4406	K18	Z4403	J20
C2208	E11	C5001	H6	C6383	C12	J2003	D4	J4813	I7	L4404	E2	R4407	B22	Z4404	E8
C2209	E11	C5002	H8	C6384	C12	J2004	I18	J4814	I10	L4405	H2	R4408	B22	Z4405	G10
C2210	G12	C5003	I8	C6385	B12	J2005	J18	J4815	E13	L4406	H2	R4413	G21	Z4406	E10
C2211	H11	C5004	I8	C6386	B12	J2006	I18	J4816	I10	L4407	I2	R4414	J21	Z4407	E2
C2212	G11	C5005	G6	C6387	G11	J2007	I18	J4817	I10	L5200	C21	R4415	G9	Z4408	I5
C2213	F12	C5007	H9	C7501	G18	J2032	H18	J4818	C8	L5201	B16	R4416	G8	Z4409	C5
C2214	F12	C5008	H8	C7503	G19	J2060	I3	J4819	D5	L6030	C14	R4417	H10	Z4411	G2
C2215	F12	C5206	I19	C7504	G18	J2061	D3	J4820	E13	L6032	C14	R4418	H10	Z4412	H2
C2216	F12	C5210	J4	C7505	F18	J2062	D2	J4821	E13	L6156	I12	R4419	H10	Z5200	J12
C2217	E12	C5211	J3	C7507	E18	J2063	D3	J4822	E13	L6175	H12	R4420	H10	Z6302	C13
C2219	E11	C5213	I19	C7508	E18	J2064	D4	J4823	F13	L6176	J13	R4800	G8	Z7500	D16
C2220	G11	C5214	B17	C7509	E19	J2065	D3	J4824	F7	L6300	C12	R5099	H8	Z7501	E19
C2221	G12	C5215	A17	C7512	D20	J2070	I14	J4825	F7	L7502	F14	R5100	C3	Z7502	I19
C2222	G12	C5216	B16	C7513	F18	J2071	I14	J4826	E12	L7503	G16	R5218	I12	Z7503	C19
C2223	F10	C5220	H10	C7514	D19	J2072	H14	J4827	E6	L7504	D20	R5221	J4	Z7504	C16
C2224	F10	C5221	G9	C7515	G16	J2107	C20	J4828	J5	L7505	D19	R5222	A18	Z7505	J18
C2225	E12	C5222	D21	C7516	E16	J2108	D9	J4829	J4	L7506	D19	R5224	F8	Z7506	E16
C2226	G11	C5223	C21	C7518	G19	J2109	D10	J5001	G6	L7510	F15	R5231	C21		
C2227	G12	C5225	G10	C7520	G19	J2110	E10	J5002	I7	L7511	E15	R5232	C21		
C2228	F12	C5226	G8	C7522	E17	J2200	E13	J5100	B2	L7512	F15	R5238	E22		
C2230	F12	C5227	B17	C7523	D19	J2201	H11	J5101	C2	L7514	I18	R5241	E8		
C2231	G11	C5228	B17	C7524	E17	J2202	H10	J5102	C2	L7515	I16	R5242	A18		
C2232	F12	C5229	B18	C7525	D18	J2204	H10	J5103	B2	L7516	C16	R5243	A17		
C2235	E10	C5230	B18	C7527	E18	J2206	H10	J5104	H5	L7517	G15	R6107	H12		
C2237	F12	C5231	C18	C7528	E18	J2207	I10	J5105	D2	**N**		R6108	H12		
C2238	F10	C5232	B18	C7529	G17	J2208	C13	J5106	H5	N1470	E21	R6159	I12		
C2239	F10	C5233	B17	C7530	G18	J2209	H10	J5107	H5	N1471	E21	R6160	I12		
C2240	H11	C5234	B16	C7531	E18	J2210	F10	J5108	B2	N2000	F9	R6300	E11		
C2241	H12	C5235	C18	C7532	G18	J2211	F10	J5109	C2	N2100	E9	R6301	F13		